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Home Orchards for South Dakota

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H O M E O R C H A R D S

FOR

S O U T H D A K O T A

By

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HOME ORCHARDS FOR SOUTH DAKOTA

It is not the purpose of this circular to set down hard and fast rules on the planting and care of fruit in South Dakota. Our climatic and soil conditions vary so much that no single plan can be made that will apply to all sections. The tastes of families and of individuals within families vary so greatly that growers should be given some choice in the selection of varieties.

This publication is not for the commercial fruit grower, but rather for the person who is not an expert in the growing of fruit and who desires to get an orchard started or correct the faults in his old one. It is written merely to give the beginner suggestions and it is hoped that at least some good will be derived from it by those who use it.

There are many who claim that it is impracticable and even impossible to grow fruit in South Dakota. These claims are without foundation for there is ample proof that it can be done. Many are growing their own fruit successfully in all parts of the state at the present time. The practices of these successful fruit growers are herewith set forth, believing that they will be of use to those who wish to develop a good home orchard.

The growing of fruit will probably be unsuccessful where the grower will not put some time and work on his orchard. A fruit tree is a living thing the same as a domestic animal. Both are apt to die if unduly neglected. We would rather see a person who has not time to care for an orchard, give up the venture, than to see him start and fail.

WHERE SHALL WE LOCATE THE ORCHARD?

The soil, here in a virgin country like South Dakota, is not so much of a problem in locating the orchard as is slope. Almost any soil that will grow an average crop of corn will grow good fruit trees if properly handled.

In the northwest, we are always in danger of losing an occasional fruit crop from late spring freezes. Much can be done to eliminate this danger if the orchard is planted in the proper place. Everyone knows that frost settles in the hollows, therefore the orchard should not be located in such a place. An orchard on a decided slope is in an ideal place. In South Dakota, a north or east slope is better than one to the south or west for the following reasons: Fruit trees on south or west slopes usually bloom earlier in the spring than on the other slopes. Such trees would consequently be more subject to injury by the late spring frosts. It is true that fruit will develop a better color on the south slopes but it is felt that the frost danger more than off-sets this point. The strongest winds come from a westerly direction and likewise the most drying. An orchard planted on an east or northeast slope is more protected from them.

HOW LARGE SHALL WE MAKE THE HOME ORCHARD?

It has been found that the average home orchard is too large rather than too small. One should not lose sight of the fact that probably more fruit can be harvested from a well kept small orchard than from a neglected large one. When the average farmer plants more trees than he can care for during his spare moments, the trees will go uncared for and failure is almost sure to follow.

The home orchard should be just large enough to supply the family with possibly a little extra for the less fortunate neighbors. An orchard consisting of twenty apple trees and a dozen plums is large enough for the average family. An orchard of this size is about right since it can be sprayed in a couple of hours and pruned in a day or two. Anything larger than this would become a burden to the owner with the result that it would not get the care that it should.

Nine out of ten orchards in South Dakota are too closely planted. Mature , bearing fruit trees need space to do their best. This space can be arranged for only when the trees are set out. Apples should not be planted closer than thirty feet apart both ways. It is true that the trees will not need this much space until they become ten or twelve years of age. This can be taken care of by using plums for fillers. Fillers are comparatively short lived trees planted between the apples. By alternating the apples with plums, all of the ground will be in use from the time the orchard is planted. By the time the plum trees are ready to be removed, the apples will be large enough to demand the entire space.

Twenty apple trees and a dozen plums (to be used as fillers) will nicely go into a piece of ground 8 x 10 rods. This is exactly half an acre. Please remember that this is not the only plan that can be used, but it is a good one for a South Dakota home orchard. The plan is diagramed herewith, giving the exact spacing.

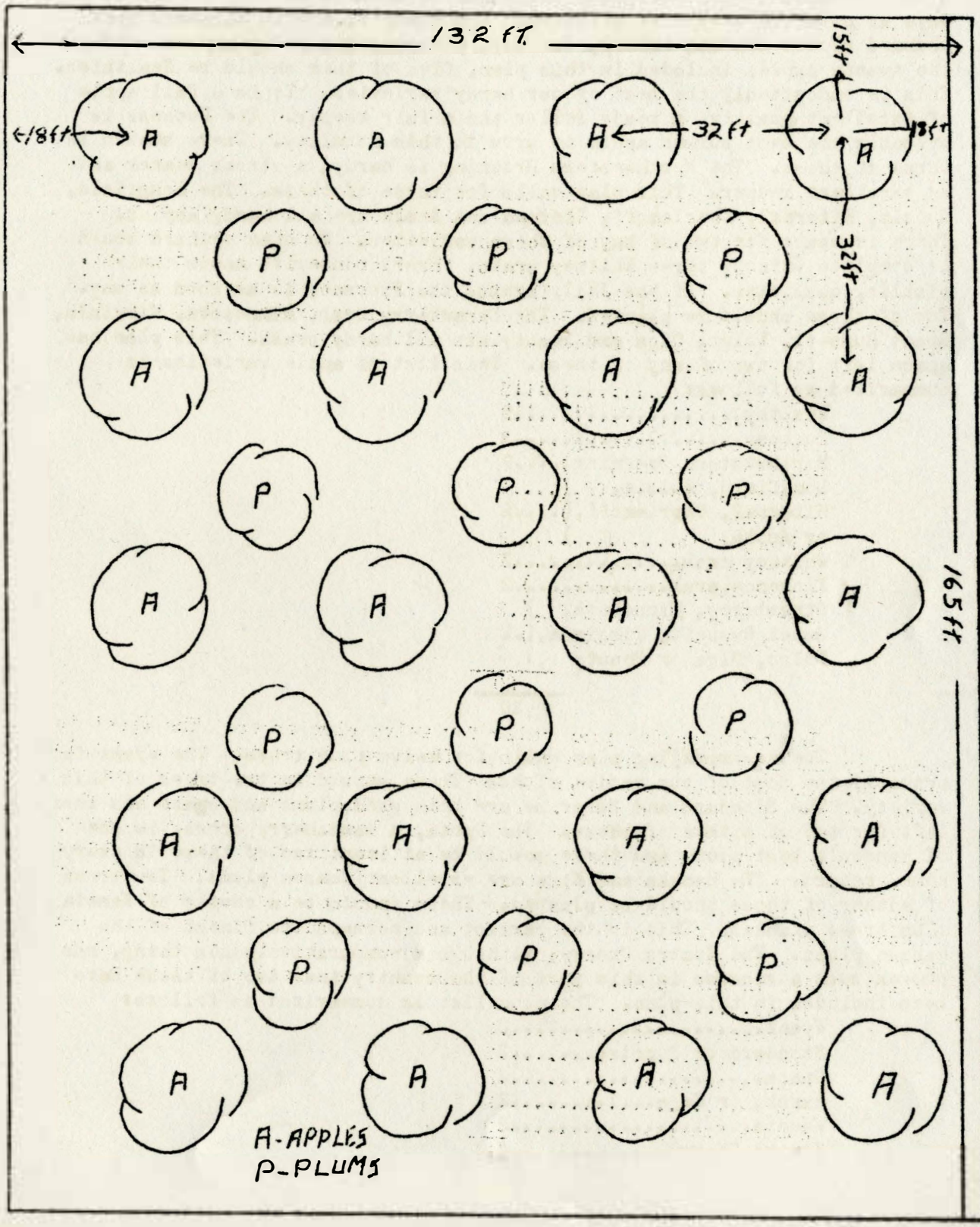
In case it is necessary to use a differently shaded plot of ground for the orchard, the same spacing and as near the same arrangement as recommended in the accompanying plan is strongly recommended. Some of the best home orchards in the state are simply made up of a single lone row of fruit trees with the plums and apples alternating. Other excellent orchards are square or rectangular.

WHAT VARIETIES SHOULD BE USED IN SOUTH DAKOTA?

In selecting the varieties of apples to plant in South Dakota, one is dealing with a very important matter. Probably more orchards have failed in the northwest because the wrong varieties were planted than from any other reason. One should always remember that we are living in a country of severe, dry winters. Only the hardiestvarieties of apples should be chosen on this account. South Dakotans should turn a deaf ear to nursery salesmen who attempt to sell non-hardy apples by gilt edged sales talks. It is strongly urged that only the hardiest varieties of apples on hardy roots be used in South Dakota.

A GOOD HOME ORCHARD PLAN
1/2 ACRE

8 RODS



Some thought should be given to choosing varieties which will make available edible fruit over as great a part of the year as possible. Also a combination of varieties which can be used in as many different ways as possible should be selected. For example, a well balanced home orchard should contain eating, cooking, pickling and jelly apples. Of the twenty apples included in this plan, five of them should be Wealthies. This is undoubtedly the best of our hardy varieties. It is a fall apple of excellent quality, a ready seller and a fair keeper. The Duchess is probably the best summer apple to grow in this locality. There should be three of these. The Northwestern Greening is hardy, a strong bearer and an excellent keeper. This plan calls for three of these. The Longfield, Auisim, Hibernal, Charlamoff, Okabena and Anoka are all hardy apples. There is space for two of any of these varieties. No home orchard would be complete without three Whitney crabs. Every housewife knows their pickling qualities. Of the jelly crabs, the Florence is as good as any. Two of these should be planted. The Strawberry crab, Minnesota, Virginia, Sweet Russett, Dolgo, Olga and Beauty are all hardy crabs. This plan has space left for two of any of these. This list of apple varieties is summarized as follows:

Wealthy	5
Duchess	3
Northwestern Greening	3
Longfield, Auisim, Hibernal, Charlamoff, or Anoka	2
Whitney crab	3
Florence crab	2
Strawberry, Minnesota, Sweet Russett, Virginia, Dolgo, Olga or Beauty	2
	20

The accompanying plan calls for twelve plum trees. The Wyant is probably the best of our native plums. There should be two trees of this variety. The Stoddard and Surprise are both good plums and space has been left for two of either of these. The Opata, a sandcherry cross, is one of Hansen's best plums and there should be at least two of these in every home orchard. The Hanska and Koga are excellent Hansen plums. Two trees of either of these should be planted. There should be a couple of Waneta plum trees planted. This is the largest and perhaps the finest of the Hansen plums. The Zumbra Cherry, although a comparatively new thing, has proven such a success in this part of the country that two of these have been included in this plan. The plum list is summarized as follows:

Wyant	2
Stoddard or Suprise	2
Opata	2
Hanska or Kaga	2
Waneta	2
Zumbra Cherry	2
	12

An orchard of this size can be easily cared for without an unreasonable amount of work. The original nursery cost is within the reach of everyone's pocket-book. This plan calls for only one-half acre of land and it is felt that every farmer in South Dakota could turn this small bit of ground into a home orchard with but very little trouble.

HOW SHOULD THE SOIL BE PREPARED?

The most successful orchards in South Dakota have been planted on cultivated ground. The soil should be cultivated for at least a year before the trees are planted. Far too many fruit trees are planted in sod. In but few cases can young fruit trees thrive under such conditions.

The ideal ground for the orchard is ground that has been under cultivation for some time. The old garden site or a corner of the corn field would furnish ideal locations. Where such ground is not available one should by all means attempt to fall plow his orchard site previous to the setting of the trees.

WHERE SHOULD THE NURSERY STOCK BE PURCHASED?

It is not within our power to list the nurseries from which you should purchase your nursery stock. Deal only with reliable nurseries as close to home as possible. Northern grown nursery stock will do better here than that which has been grown in the east or the south. Any nursery in the Dakotas or in Minnesota should be able to furnish satisfactory stock.

The fruit tree agent has, in the past, done much to discourage the growing of fruit in the northwest. They have sold non-hardy varieties claiming that they are absolutely hardy. They have sold stock not true to name (in many cases nothing more than seedlings). Fortunately but few of the old time tree peddlers are still operating. In spite of this, it would certainly pay to be more careful in placing orders. Most of the present day nursery salesmen are square dealers and intend to do only the right thing by his customers. The buyer of nursery stock should, however, give orders only to those who have proven by past experience (either personal or in the community) to be connected with a concern that delivers satisfactory goods.

AGES OF TREES TO ORDER:

Many persons prefer three and four year old trees to those which are younger. The wise planter will order young trees. The one year old whip (apple) is probably better than the two year old. The reasons why one year old trees will probably be more satisfactory are: (1) they cost less. (2) The freight or express will be less. (3) A tree must be a good thrifty one to reach a salable size in a year's time; in other words it assures the purchasing of only good growthy stuff. (4) Older nursery trees are often poorly shaped and hard to correct by pruning. (5) The young trees stand transplanting much better than the older tree. (6) The young tree will usually catch up with the older tree and bear fruit just as quickly.

WHEN TO ORDER NURSERY STOCK:

Some concerns attempt to sell their stock in the fall, asking that the purchaser heel in the trees until spring. This is a poor practice in this locality as the mortality in trees which have been heeled in over winter is quite high. Trees should be received from the nursery in the spring but the orders should be placed early. If one puts off ordering, one can expect many disappointments. Some of the varieties that he wants are sold out or there are nothing but the three year old trees left, etc.

HOW TO HANDLE NURSERY TREES WHEN THEY ARRIVE:

Nursery trees should not be left in the bundle any longer than possible after they arrive. It seldom happens that one receives the trees at a time when he can plant them. They should be heeled in until planting time. By heeling in is meant the thorough burying of the roots and the trunk in moist earth. Before heeling in, the bundles should be broken so that it will be possible to thoroughly tramp earth around all of the roots. If not allowed to get too dry, nursery stock can be left heeled in in this manner for long periods of time without injury.

THE PLANTING OF FRUIT TREES:

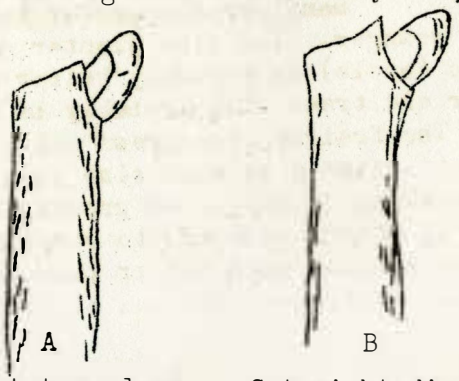
In digging the holes for the trees, the surface and the subsoil should be kept separate, especially if there is a clay subsoil. Before planting, prune off all broken and wayward roots. The tree should be planted about two inches deeper than it was when it came out of the nursery row. The top soil should be placed around the roots and thoroughly tramped down. The remainder of the hole should be filled with the subsoil.

In planting apple trees, it is always well to turn the strong side of the tree toward the southwest. This will usually result in the strongest growth in future years toward the southwest, thus eliminating much of the injury by sunscald later.

PRUNING NURSERY TREES AFTER PLANTING: (For apples)

As soon as the tree is planted, heavy pruning back of the top should be practiced. All trees attempt, at least, to maintain a balance between the top and the roots. When a tree is dug from the nursery row, fully half the roots are left in the soil. In other words, the natural balance of the tree is destroyed when dug. The pruning back of the top at planting time will tend to artificially restore this destroyed balance.

In cutting back the top of a young tree, more should be kept in mind than merely reducing the top. The future shape and growth of the tree should be started at this time. There should be a reason for making



Cut too close to bud. Cut right distance above bud.

Fig. 1.

every cut. If one year old whips are planted, the first pruning merely consists of cutting back the shoot to the height that one wishes to have for the head of the tree. The cut should be made just above a strong bud (Fig. 1, page 6) that points toward the southwest. The reason for this is to get as much growth as possible to the southwest, thus making the tree less susceptible to sunscald later.

If two year old trees are planted, the first thing to eliminate is the weak crotch. (Fig. 2, page 7). If a tree shows a decidedly weak crotch, that is one that is apt to split down with age, one side of the crotch should be completely removed and then the tree pruned as a one year old whip as described above. All apple trees should have their scaffold of main limbs radiating from all sides of the trunk but each one leaving the trunk at a different height. Such a tree can never develop a weak crotch.

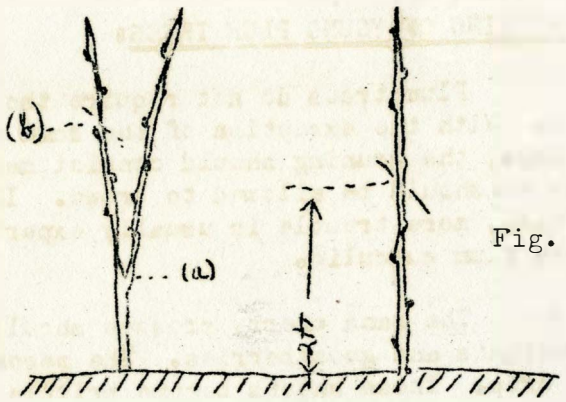


Fig. 2.

SECOND YEAR PRUNING: (For apples)

For this locality, the type of tree known as the modified leader tree is probably the most satisfactory. By the modified leader (Fig. 3, page 7) tree is meant one whose leader, or central shoot, is not given the liberty of full growth but is shortened so that it is only slightly longer than the lateral branches. This will give a tree with a central leader from around which future scaffold limbs can grow, but at the same time a leader which will not produce a tree that is too high.

In pruning the year after planting, the following procedure is recommended. First cut the leader part way back. Cut the dominating laterals back so they are slightly shorter than the central leader. Laterals should be cut just above an outside bud (Fig. 1, page 6) which will cause the tree to spread more during its future growth. The laterals should also be thinned out so that no two branches will be competing for the same space.

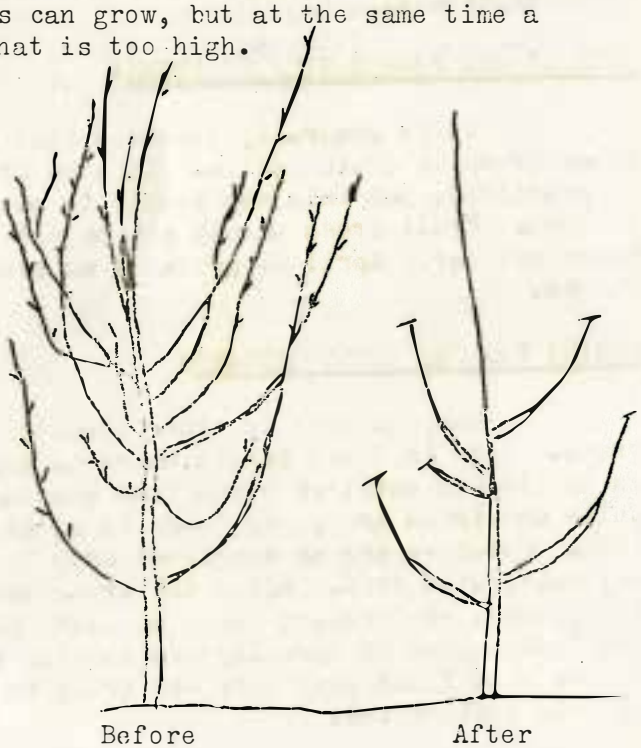
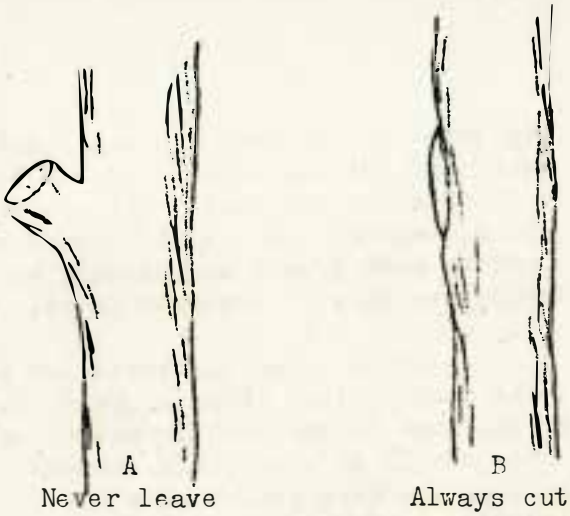


Fig. 3

In removing side branches, cut as close to the trunk as possible, (Fig. 4, page 8). Close cuts will heal readily, while stubs never heal and are a source of constant danger for disease and decay to enter later.



A
Never leave a stub.

B
Always cut Close.

THE PRUNING OF YOUNG PLUM TREES:

Plum trees do not require the training that is necessary of apple trees. With the exception of the sand cherry crosses, such as the Opata and the Sapa, the pruning should consist merely of a general thinning out. No branches should be allowed to crowd. If plum trees are allowed to become too thick, more trouble is usually experienced with the stinging of the fruit by the plum curculio.

The sand cherry crosses should be pruned from the base similar to currants and gooseberries. The second year shoots usually will bear a good crop. These shoots become brittle with age and are subject to breaking down if more than three crops are allowed to be borne on the same wood. These varieties throw new shoots from the crown each year. As soon as three crops are borne on a limb, it should be removed by cutting off at the base, allowing a one year shoot to take its place. By pruning sand cherry crosses in this manner, the quality of the fruit will be bettered and the life of the tree lengthened.

WHEN IS THE PROPER TIME TO PRUNE:

It is generally conceded that early spring is the best time to prune trees in South Dakota. In some fruit growing sections, fall pruning is practiced, but this may result in severe injury in a climate as severe as ours. Fruit trees should not be cut when there is frost in the wood. March and early April is probably as good a time to prune as any in South Dakota.

CARING FOR THE YOUNG ORCHARD:

Many growers in other localities seed down their orchards to grass. Here in South Dakota there is ample evidence that the orchard which is cultivated until it comes into bearing, does better than the sod orchard. While the trees are young there is plenty of room for the garden between the rows. Potatoes are an excellent crop to put in the young orchard, in fact any cultivated crop. After the trees become large enough to partially shade the ground, the orchard makes an ideal place for the poultry yard. Most of the leading men on farm layouts combine the poultry yard and the orchard. It has been found that both the fruit trees and the poultry are benefited by this combination.

The young orchard should by all means be fenced, especially if livestock has the run of the place. Many good young orchards have been hopelessly ruined by livestock.

Light pruning should be practiced each spring (in case of apples). During these pruning operations, the future growth of the tree should be kept in mind. Do not allow the top of the tree to become too thick nor yet too open. If the young tree shows a tendency to become too high, the leader should be headed to a good strong lateral. Keep as much growth as possible to the southwest side of the tree to prevent sunscald. All sprouts which grow from the roots should be removed each year. This is worthless wood and draws nourishment from the roots at the expense of the bearing wood. In case the trees become damaged by storms or broken down by snow drifts, during the winter, they should be cared for as follows: Remove the stubs of broken limbs, cutting as close to the trunk as possible. It is a good idea to paint all large pruning wounds with white lead, as this seals the cut and prevents the entrance of wood decaying diseases.

When the young orchard is located in a place that becomes badly drifted with snow during the winter, rabbits are very apt to gurdle the trees. This trouble can be avoided by placing protectors around the trunks in the fall. Old window screening wrapped around the trunks makes an excellent protector. Corn stalks or burlap bags will protect the tree against rabbits but they also make a good nesting place for mice which often do as much damage as rabbits. People have been known to oil the trunks of trees to keep off the rabbits. This should never be done as oil will often kill young apple trees outright.

FERTILIZING THE ORCHARD:

In most of the older fruit growing sections, the growers find it necessary to fertilize their orchards. Here in South Dakota the question of orchard fertilizers is not such an important one. We still have much of the virgin fertility in most of our soils.

The man who uses ordinary well rotted barn yard manure on his orchard gets more rapid growth in the young orchard and possibly a slightly better yield in the mature one. It is a practice to be recommended although not absolutely necessary as yet in this state. The manure should be scattered around each tree, care being taken not to place it within six inches of the trunk. This manure can be applied in the winter, preferably on the snow.

INSECT ENEMIES OF THE YOUNG ORCHARD:

The young orchard is constantly in danger of being defoliated by insect pests. There are so many bugs that feed on the foliage of apples and plums that lack of space will not permit a discussion of each. However, there are a few simple principles of fruit tree insect control that can be used by everyone.

A thorough spray of lead arsenate, one and one-half pounds of the powder, to 50 gallons of water, will control practically all insects that are leaf eaters. Anyone can certainly tell if an insect is eating the leaves. If so, spray as above directed and you can be almost certain of satisfactory control.

Occasionally plant lice attack young apple and plum trees. These small green, black or brown lice can be detected on the under side of the leaves. The first hint one gets of such trouble is the pronounced curling of the leaves on the terminal twigs. When such injury is detected, infested trees should be thoroughly sprayed with the following solution: Dilute one-half pint of black leaf 40 in 50 gallons of water. Shave three or four bars of ordinary laundry soap in the solution and agitate until the soap has dissolved. The spray is now ready to use. This is a contact spray, it being necessary to actually wet the insects in order to kill them. Because of this, the spraying should be done very thoroughly if satisfactory results are to be expected.

In case web-forming insects become serious, the lead arsenate spray will stop them. Before spraying, the webs should be broken with a pole, otherwise the spray will not penetrate to the insects. The webs can also be burned with a pole torch without injuring the trees if a little care is taken not to hold the flame too long in one place.

SPRAYING FOR SOUND FRUIT:

After fruit trees come into bearing, invariably trouble with wormy fruit will be experienced. Wormy fruit will not keep and is not salable. Such injury can be greatly reduced by correct spraying at the proper time.

For apples, the following spray is recommended: One and one-half pounds of powdered lead arsenate and five quarts of liquid lime sulphur (or two and one-half pounds of powdered lime sulphur) should be used in each 50 gallons of spray solution. By putting both of these materials in the same solution, the worms and the fungus diseases of the fruit can be checked in the same operation. From three to four gallons of spray is enough for the average mature apple tree.

Commercial fruit growers apply five or six sprays each season. In the case of the home orchard, it is felt that the average farmer has not time to put on this many sprays. Although the full number of sprays will give the greatest percentage of clean fruit, much good can be accomplished with two or three of the more important sprays.

In the case of apples, the most important spray is applied just after the blossoms fall. If a person has time for only one spray, he should by all means put it on at this time. A second spray applied three weeks after the blossom fall spray, will further reduce wormy and diseased fruit.

For the person who has the time and wishes to apply more sprays, the cluster bud spray is perhaps the third most important spray that can be applied. It is applied just as the buds are showing pink. This spray is especially valuable where apple scab is a serious problem.

Fruit should never be sprayed when in full bloom. This practice hinders pollination which is essential for good yields. It has also been found that spraying when the trees are in full bloom will kill many bees.

For plums, the same spray combination as recommended above should be applied. One application should be made when the blossom buds are showing white and a second immediately after the petals fall. These two sprays are aimed against the plum curculio, which causes the stinging of plums and also the disease known as plum pocket which causes plums to swell to enormour sizes and become pithy and worthless. This spray will also help in checking other insects and diseases that may exist in the orchard.

THE MATURE APPLE ORCHARD AND ITS CARE:

With farms changing hands and renters moving from place to place, the subject of caring for the mature orchard is always a popular one. This problem is probably the most difficult one to handle in the entire culture of the home orchard. The following practices are recommended where one wishes to do something with the old neglected orchard: Apple trees that are more than 30 years old, neglected and full of dead or diseased wood are hopeless. Any work and expense put on trees of this kind is pretty apt to be wasted. The trees had better be removed and burned before the diseases spread to healthy trees.

Where old trees show plenty of vigor and are not too badly diseased, they can usually be made to bear good crops of fruit. In the first place these trees should be pruned. Remove all suckers, both around the base of the trunk and in the center of the tree. All dead and diseased wood should be cut out and burned. Where limbs crowd or cross, these congestions should be relieved by cutting out the weaker of the two limbs that rub. In pruning old neglected trees, the bulk of the wood should be taken from the center of the tree in order to let in sunlight which is essential for the production of fruit of good size and color.

The mature apple tree should be pruned from the inside rather than from the outside. The lower limbs should not be removed unless they actually drag on the ground. These low limbs will produce good fruit in a place where it can be sprayed and picked with the least amount of work.

The pruning recommended above should be done in early spring. To complete the job of bringing back the old orchard, spray as directed on page 10. The old orchard may not respond as expected the first year, but this procedure usually brings satisfactory results by the second season at the outside.